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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,588

11/28/2007

Akihiro Tachibana

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EXAMINER

CHWASZ, JADE R

ART UNIT

PAPER NUMBER

2872

NOTIFICATION DATE

DELIVERY MODE

06/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DBRIPDocket@dbr.com
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Office Action Summary	Application No. 10/594,588	Applicant(s) TACHIBANA ET AL.	
	Examiner Jade R. Chwasz	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/30/07, 11/28/07, 7/1/08, 10/2/08, 6/3/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 2,3,9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/28/06, 7/1/08 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/30/07, 10/2/08, 6/3/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because of the use of the phrase "This invention." Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-5, 8, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujam et al. (WO 99/57719) in view of Long (6,806,983).

Consider claims 1 and 8, Ramanujam et al. disclose (e.g. figure 2) a hologram reproducing apparatus and method for reproducing signal information from a domain of diffraction grating of a recording media that is irradiated with a record light beam containing a coherent reference light component and a signal light component spatially modulated according to the signal information substantially on the same optical axis and is recorded an interference of the reference light component and the signal light component, [pg. 11, lines 3-4 and pg. 12, lines 22-25] comprising:

- a light source (21, laser) for emitting a coherent light beam [pg. 11, lines 3-4];

- a light-beam irradiator (22', beam shaping optics) for irradiating the light beam to the domain of diffraction grating of the recording medium;

- a light collector (28, objective lens) for collecting a reproduced light beam reproduced by irradiating the light beam to the domain of diffraction grating (2, optical card) toward a convergent position [pg. 12, line 28 to pg. 13, line 2];

- a device for separating a component of the reproduced light (37, aperture); and

- a detecting section (29, CCD detector) for detecting the signal information from the diffraction component [pg. 12, line 28 to pg. 13, line 4]

and a reproducing step of reproducing the signal information from the diffraction component (52, read apparatus).

However, Ramanujam et al. do not disclose that the device for separating a component of the reproduced light is an incident-light processing unit provided at the convergent position and for separating a Fourier 0-order component of the reproduced light beam and a diffraction light component of the reproduced light beam.

Ramanujam et al. and Long are related as apertured devices. Long teaches (e.g. figures 1-2) an incident-light processing unit (76, annular aperture) provided at the convergent position and for separating a Fourier 0-order component of the light beam and a diffraction light component of the light beam [col. 7, line 57 to col. 8, line 13]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Ramanujam et al., in view of Long, so that interference fringes can have a very high spatial frequency such that extremely fine lines or small objects can be recorded/reproduced.

Consider claims 4 and 11, the modified Ramanujam et al. reference discloses (e.g. figures 1-2 of Long) a hologram reproducing apparatus and method wherein the incident-light processing unit (76, annular aperture) has a reflective area to reflect the Fourier 0-order component of the reproduced light beam (e.g. the center portion reflects at least a portion of the 0th order beam) and a transmissive area to transmit the diffraction component of the reproduced light beam (e.g. the annular portions transmits portions of the beam in the dear/transparent areas) [col. 7, line 57 to col. 8, line 39 of Long].

Consider claims 5 and 13, the modified Ramanujam et al. reference discloses (e.g. figure 10 of Long) a hologram reproducing apparatus wherein the incident-light processing unit (76, annular aperture) has a transmissive area to transmit the Fourier 0-order component of the reproduced light beam (e.g. the center portion transmits the 0th order beam in the dear/transparent area) and a reflective area to reflect the diffraction

Art Unit: 2872

component of the reproduced light beam (e.g. the annular portions reflects at least a portion of the beam) [col. 17, lines 39-56 of Long].

6. Claims 6-7, 12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujam et al. (WO 99/57719) in view of Long (6,806,983) as applied to claims 1 and 4 above, and further in view of Psaltis et al. (5,671,073).

Consider claims 6, 12 and 14, the modified Ramanujam et al. reference does not disclose that the hologram reproducing apparatus and method includes: an optical-axis detecting section for detecting a position of an optical axis of the reproduced light beam, and a drive section for moving the light collector and the incident-light processing unit on a basis of a position of the optical axis detected by the optical- axis detecting section. Ramanujam et al., Long and Psaltis et al. are related as recording devices. Psaltis et al. teach (e.g. figure 1) an optical-axis detecting section (27, recording electronics includes a programmed microprocessor to send signals to cause the disk media to rotate and the spatial light modulator to transmit the proper image to be recorded. The proper location of the disk must be known in order for the recording electronics to function as intended.) for detecting a position of an optical axis of the reproduced light beam, and a drive section (45, servos) for moving the light collector (e.g. lens 20) and the incident-light processing unit (multiple servos are provided to accurately position the various elements to achieve a desired recording/reproducing set up) on a basis of a position of the optical axis detected by the optical-axis detecting section [col. 8, lines 9-32]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Ramanujam et al. reference, as taught

Art Unit: 2872

by Psaltis et al., in order to accurately record multiple holograms in a holographic medium.

Consider claims 7 and 15, the modified Ramanujam et al. reference discloses (e.g. figure 1 of Psaltis et al. and figures 1-2 of Long) wherein the optical axis detecting section receives the Fourier 0-order component of the reproduced light beam (Note: Long discloses various embodiments wherein the 0th order component is transmitted and blocked. As such, the detecting section can be used in either embodiment such that the 0th order can be detected) [col. 8, lines 9-32 of Psaltis et al., col. 7, line 57-59 and col. 17, lines 39-56 of Long].

Allowable Subject Matter

7. Claims 2-3 and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jade R. Chwasz whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 6:00 am -3:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/Jade R. Chwasz/
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner
Art Unit 2872